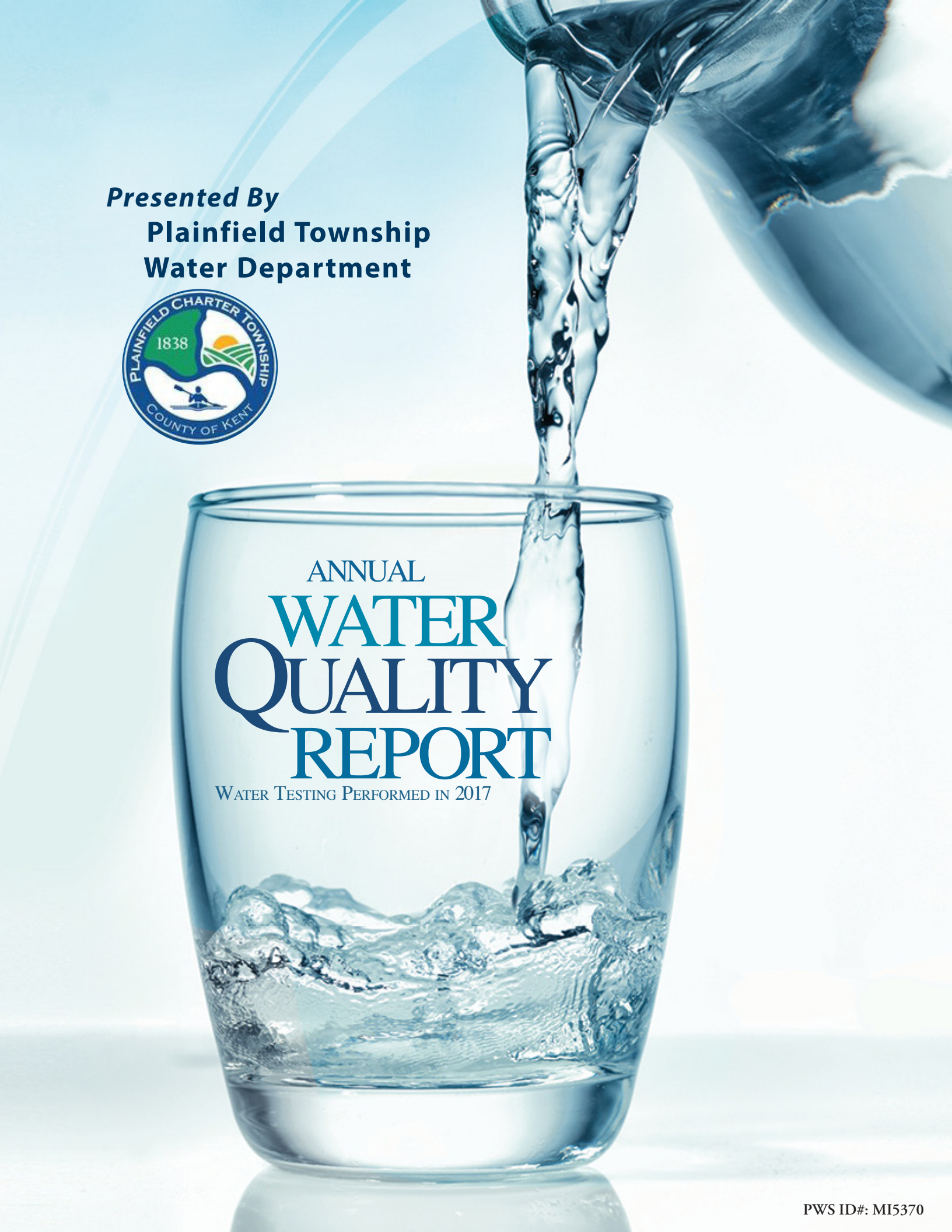


Presented By

Plainfield Township
Water Department

ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2017

PWS ID#: MI5370

Quality First

Once again, we are pleased to present our annual water quality report. This is our 20th annual report, and it covers the period between January 1 and December 31, 2017. As in years past, we are committed to delivering the best-quality drinking water possible. To that end, we remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of all our water users. Thank you for allowing us the opportunity to serve you and your family.

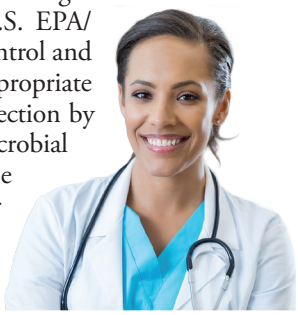
We encourage you to share your thoughts with us on the information contained in this report. After all, well-informed customers are our best allies.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. There are Township board meetings the 2nd and 4th Mondays of each month beginning at 7:00 p.m. at Plainfield Township Hall, 6161 Belmont Ave., Belmont, Michigan 49306.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or http://water.epa.gov/drink/hotline.



Source Water Assessment

A Source Water Assessment Plan (SWAP) is available at our office. The State of Michigan performed this assessment of our source water in 2003. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area, and a determination of the water supply's susceptibility to contamination by the identified potential sources.

According to the Source Water Assessment Plan, our water system had a susceptibility rating of "high" due to the geological characteristics of the soils around our wells. The importance of protecting the Township's well fields cannot be overemphasized. If a release of pollutants occurs on the ground near our wells, it will travel very quickly toward these wells and the Grand River. We have enacted a Wellhead Protection Ordinance, and a map of the "Wellhead Protection Zone," can be viewed through the links located on the Township's website (www.plainfieldmi.org). We have no contamination violations, and our wells meet all standards for construction. If you would like to review the Source Water Assessment Plan, please feel free to contact our office during regular office hours.

About Our Violation

The running locational annual average of TTHMs in a small service area north of the Ten Mile Road elevated tank exceeded the MCL in October 2016. Because of the running annual average, the violation lasted until April 2017 even though the TTHM levels dropped below the MCL. The organic level in the raw water supply was unusually high, so the reaction of chlorine to this organic load elevated the levels of trihalomethanes. To prevent this from happening again, we have installed mechanical mixers in the Kuttshill and Ten Mile tanks, stopped adding additional chlorine at the Childsdale pumping station, and instituted operational changes to lower water residence time in the distribution system. This has proven effective to lower TTHM levels and put us in compliance. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

> **Water treatment is a complex, time-consuming process.**

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

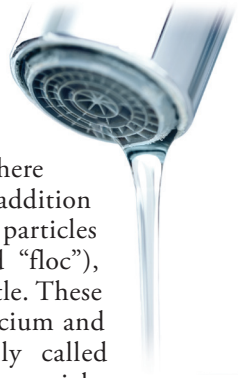
Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Water Treatment Process



The treatment process consists of a series of steps. First, raw water is drawn from our well water source and sent to the treatment plant. The water then passes through a clarifier, where lime and alum are added. The addition of these substances cause small particles to adhere to one another (called "floc"), making them heavy enough to settle. These small particles are made up of calcium and magnesium, which is commonly called hardness. The heavy hardness particles drop to the bottom of the clarifier and the sediment is removed by gravity to be drained. Chlorine and fluoride are added for disinfection and prevention of tooth decay. The clarified, softened water then flows by gravity to filters constructed with layers of fine silicate sand and anthracite coal. As water is pumped through these filters, smaller suspended particles are removed, and clear water emerges. All chemicals added to the water are carefully monitored, adding the lowest quantity necessary to protect the safety of your water without compromising taste. Finally, a corrosion inhibitor in the form of phosphate (used to protect distribution system pipes) is added before the water is pumped to ground storage reservoirs and elevated water tanks, where gravity takes over to provide water under pressure to homes, schools, and businesses. To address the trace levels of PFOS and PFOA in our water, we plan to replace some or all of the silicate sand and anthracite coal in five of our filters with granular activated carbon, which has been shown to be effective in removing these contaminates.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Donald Petrovich, Water Treatment Plant Superintendent, at (616) 364-7174.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/lead.

Where Does My Water Come From?

Plainfield Township Water Department customers enjoy an abundant water supply from 11 wells located in two separate well fields. The Water Treatment Plant, no longer draws water from the 5 wells located in the Versluis Well Field East of Northland Drive, due to the presence of elevated levels of PFAS first detected in 2013. PFAS is a family of unregulated contaminants for which the EPA has a health advisory for two of these contaminants (PFOS and PFOA) of 70 ppt combined, or individually if only one is present. We have never exceeded this lifetime health advisory. The East Well Field near the Treatment Plant, has 3 submersibles and 3 collector wells, and the West Well Field, also near the plant, has five wells that make up our raw water supply. The Township is in the process of finding a new well field to replace the 5 Versluis wells. The Water Treatment Plant was originally constructed in 1963 and expanded over the years to draw from this underground water supply that is constantly being resupplied with water from rain and upgradient aquifer flow.

Plainfield Township Water Facts:

- 1.499 billion gallons of water supplied
- 40,000 population served
- 10.270 million gallons maximum day pumpage
- 2.140 million gallons minimum day pumpage
- 4.10 million gallons per day average usage
- 230 miles of water main
- 10,826 water meters
- 2,308 valves
- 2,582 hydrants
- 14 elevated and ground storage tanks with a total capacity of 14.1 million gallons of water

The water storage tanks provide pressure as well as water for fire protection. Five pump stations move water to our tanks and four pressure districts. We provide water to Plainfield Township, portions of Alpine Township, Grand Rapids Township, Algoma Township, and a small section in the City of Walker.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. The information in the data tables shows only those substances that were detected between January 1 and December 31, 2017. Remember that detecting a substance does not necessarily mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels. The State recommends monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

We participated in the 3rd stage of the EPA's Unregulated Contaminant Monitoring Rule (UCMR3) program by performing additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, to determine if EPA needs to introduce new regulatory standards to improve drinking water quality. Contact us for more information on this program.

A complete list of all the substances we tested for in 2017, but did not find present in our water, can be found on our website (www.plainfieldmi.org).

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chlorine (ppm)	2017	[4]	[4]	0.78	0.12–1.15	No	Water additive used to control microbes
Combined Radium (pCi/L)	2015	5	0	1.66	1.66–1.66	No	Erosion of natural deposits
Fluoride (ppm)	2017	4	4	0.9	0.58–0.9	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Gross Alpha (pCi/L)	2015	15	NA	1.4	1.4–1.4	No	Erosion of natural deposits
Haloacetic Acids [HAA] (ppb)	2017	60	NA	15.6	9.4–20.7	No	By-product of drinking water disinfection
Nitrate (ppm)	2017	10	10	1.21	1.21–1.21	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes][1] (ppb)	2017	80	NA	84.9	48.3–82.1	Yes	By-product of drinking water disinfection
Total Organic Carbon (ppm)	2017	TT	NA	2.39	2.11–2.39	No	Naturally present in the environment
Turbidity[2] (NTU)	2017	TT	NA	0.07	0.04–0.07	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2017	TT = 95% of samples meet the limit	NA	100	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2016	1.3	1.3	0.02	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2016	15	0	0	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Sulfate (ppm)	2017	250	NA	45.8	45.8–45.8	No	Runoff/leaching from natural deposits; Industrial wastes

UNREGULATED AND OTHER SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Calcium (ppm)	2017	45	20–45	Naturally present in ground water
Chloride (ppm)	2017	102.5	67.5–102.5	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Hardness (ppm)	2017	178	121–178	Naturally present in ground water
Iron (ppm)	2017	<0.020	<0.020–<0.020	Leaching from natural deposits; Industrial wastes
Magnesium (ppm)	2017	28	12–28	Naturally present in ground water
Perfluorobutanesulfonic Acid [PFBS] (ppt)	2017	5.4	3.8–5.4	Consumer products such as Teflon, Scotch Guard, Stain Master, and firefighting foam
Perfluoroheptanoic Acid [PFHpA] (ppt)	2017	3.9	0–3.9	Consumer Products such as Teflon, Scotch Guard, Stain Master, and firefighting foam
Perfluorohexanesulfonic Acid [PFHxA] (ppt)	2017	3.6	2.0–3.6	Consumer products such as Teflon, Scotch Guard, Stain Master, and firefighting foam
Perfluorooctanesulfonate Acid [PFOS] (ppt)	2017	6.6	4.6–6.6	Consumer products such as Teflon, Scotch Guard, Stain Master, and fire fighting foam
Perfluorooctanoic Acid [PFOA] (ppt)	2017	3.4	2.2–3.4	Consumer products such as Teflon, Scotch Guard, Stain Master, and firefighting foams
Sodium (ppm)	2017	36.9	36.9–36.9	Naturally present in ground water

[1] After efforts to lower TTHM levels, we are now in compliance. The amount detected is the LRAA.
[2] Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as the highest LRAAs.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

ppt (parts per trillion): One part substance per trillion parts water (or nanograms per liter).

SMCL (Secondary Maximum Contaminant Level): SMCLs are established to regulate the aesthetics of drinking water like appearance, taste and odor.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.